

HELLER, EHRMAN, WHITE & MCAULIFFE
ATTORNEYS

A PARTNERSHIP INCLUDING PROFESSIONAL CORPORATIONS

333 BUSH STREET
SAN FRANCISCO, CALIFORNIA 94104-2878
TELECOPIER (415) 772-8288
TELEPHONE (415) 772-6000

4100 FIRST INTERSTATE CENTER • 999 THIRD AVENUE
SEATTLE, WASHINGTON 98104-4011
TELEPHONE (206) 447-0900 • TELECOPIER (206) 447-0849

1300 S.W. FIFTH AVENUE
PORTLAND, OREGON 97201-5696
TELECOPIER (503) 241-0950
TELEPHONE (503) 227-7400

525 UNIVERSITY AVENUE
PALO ALTO, CALIFORNIA 94301-1908
TELECOPIER (415) 324-0638
TELEPHONE (415) 326-7600

445 SOUTH FIGUEROA STREET
LOS ANGELES, CALIFORNIA 90071-1630
TELECOPIER (213) 612-7797
TELEPHONE (213) 689-0200

August 22, 1988

N Market St
OS 44-101
8-22-88

Stephen A. Lingle
Hazardous Site Evaluation Division (Attn: NPL Staff)
Office of Emergency and Remedial Response
U.S. Environmental Protection Agency
401 M Street SW
Washington, D.C. 20460

RE: Comments on the Nomination of Tosco's Spokane Terminal to the NPL.

Dear Mr. Lingle:

These comments are submitted on behalf of Tosco Corporation, the current owner of the Spokane Terminal at the North Market Street Site in Spokane, Washington. On June 24, 1988, the site was proposed for inclusion on the National Priorities List (NPL). The comments are based on EPA's Hazard Ranking System (HRS) worksheets for the site. The references cited are to the supporting materials included with the HRS worksheets.

I. Waste Characteristics

A. Toxicity/Persistence

In the HRS worksheets, EPA evaluated lead and chromium, both of which were assigned maximum values for toxicity and persistence. The inclusion of chromium as an evaluated parameter is inappropriate for scoring purposes. Of the samples analyzed and reported by Golder Associates in HRS Reference 21, chromium values ranged from 8.1 to 12 mg/kg. Lead concentrations in the same samples ranged from 11 to 365 mg/kg. The relatively narrow range of chromium concentrations compared to lead suggests that the observed chromium represents background concentrations in the soil. Moreover, Bohn (1985) reports typical chromium concentrations in soils at 20 mg/kg with a range of 5 to 1,000 mg/kg. Thus, existing data indicate that chromium concentrations do not appear to be elevated onsite, despite its suggested presence as a contaminant through the identification of K049 waste on TOSCO's 103(c) notification. HRS Reference 15.

USEPA SF



1520520

B. Hazardous Waste Quantity

EPA used the figure of "approximately 5,600 cubic feet" of slop oil emulsion solids (K049 listed RCRA waste) and leaded tank bottoms (K052 RCRA listed waste) for calculating hazardous waste quantity. The figure is taken from Tosco's CERCLA section 103(c) "Notification of Hazardous Waste Site." HRS Reference 15. Because Tosco never operated the refinery, Tosco could only guess what wastes were disposed of on site and make a good faith estimate of total waste quantity for the 103(c) notification. As stated on the 103(c) Notification, based on Tosco's knowledge of historic refinery practices in general, Tosco "assumed that slop oil emulsion solids were at times disposed of at the waste oil dump facility at the site." The figure of 5,600 cubic feet does not represent an actual amount of waste sent to the oil lagoon, but is rather Tosco's rough estimate of the capacity of the portion of the lagoon on Tosco property. Similarly, Tosco does not know for certain that leaded tank bottoms were disposed of on the property. Rather, as stated on the 103(c) Notification, "it is probable that leaded tank bottoms were at times disposed of in holes dug in the terminal property." Tosco has never found evidence of the disposal of leaded tank bottoms on the property and "quantities are assumed to be small and inconsequential." Tosco notes that, according to the HRS User's Manual, when there is no data for a factor, it should be assigned a value of zero.

As noted, the figure of 5,600 cubic feet is only an estimate of the total capacity of the portion of the waste oil lagoon on Tosco property. Any RCRA waste that is assumed to have been deposited in the lagoon would be present in a much smaller quantity. RCRA listed slop oil emulsion solids make up only a small portion of the waste streams from an oil refinery. Attachment A to these comments contains a table prepared by an EPA contractor delineating the content of waste streams from oil refineries. As the table indicates, the typical waste stream containing slop oil emulsion solids is 40 percent water. Of the remaining 60%, 22.5% is oil and only 37.5% is slop oil emulsion solids. Thus, the 5,600 cubic foot lagoon on Tosco's property could contain a maximum of only 2,100 cubic feet of RCRA listed slop oil emulsion solids. Note that the 2,100 cubic foot figure is the maximum amount of slop oil emulsion solids that could possibly be contained in the lagoon on Tosco property. In reality, the figure should be much lower because other, non-RCRA, wastes were deposited in the lagoon.

Using the maximum figure of 2,100 cubic feet for hazardous waste quantity (i.e., 78 cubic yards) would result in an HRS score of 3 for this factor, reducing the total score (Sm) for the facility from 32.61 to 31.13. In reality, the total quantity of slop oil emulsion solids on the Tosco property is much lower and the site would not qualify for listing on the NPL if an accurate figure could be determined.

C. Petroleum Exclusion

In sum, there is no direct evidence that RCRA wastes were disposed of at the North Market Street site. In fact, there is no evidence that any substances other than petroleum products were disposed of on site. Elevated lead concentrations on site could logically result from leaded gasoline releases. Thus, the site should be exempt from CERCLA coverage under 42 USC § 9601(14) which excludes petroleum products from the definition of hazardous substances.

Comment II: Route Characteristics

A. Depth to Aquifer of Concern

EPA used a "conservative" value of 0 feet for the depth of the hazardous substances. Tosco and its technical consultants agree with EPA that contamination at the site is confined to the near surface area of the site. Review of test pit data from the Washington State Department of Ecology's contractor Golder Associates, Inc. confirms that the depth of any hazardous substances is minimal.

Depth from the ground surface to the highest seasonal water table is reported in the HRS worksheets as 147 feet. Reference 19 of the HRS Scoring package consists of handwritten field logs for Boring B-2 which note a depth to groundwater in the borehole of 147 feet on April 22, 1987. Since this particular boring was not completed as a monitoring well, the single water level reading should not be considered a static water level until a number of measurements are taken on a periodic basis to demonstrate that water levels have stabilized in the borehole.

Data from Golder Associates (1988) provides more reliable water level measurements from monitoring wells installed in June, 1987. Monitoring wells NM-1, NM-3, NM-4 and NM-5 are located on or immediately adjacent to the Tosco property and exhibited the depths to groundwater shown in Table 1.

TABLE 1: Depth to Groundwater Measurements - Golder, 1988
(feet below top of well casing)

<u>1987</u>	<u>NM-1</u> (feet)	<u>NM-3</u> (feet)	<u>NM-4</u> (feet)	<u>NM-6</u> (feet)
July	161.10	157.35	152.82	155.55
October			154.21	
November	162.34	158.41	153.64	157.55

Each of these measurements is based on the water level depth from the top of the well casing and can be adjusted for the difference between the casing and land surface elevation using geodetic survey results summarized by Golder (1988). The adjusted results are presented in Table 2.

TABLE 2: Adjusted Depth to Groundwater
Water Measurements - Golder, 1988
(feet below groundwater surface)

<u>1987</u>	<u>NM-1</u> (feet)	<u>NM-3</u> (feet)	<u>NM-4</u> (feet)	<u>NM-6</u> (feet)
July	158.28	154.51	149.91	152.44
October			151.30	
November	159.52	155.57	150.73	154.44

Based on this data, the HRS score should be revised to reflect a depth of over 150 feet to the aquifer. Revising the score for depth to the aquifer to 0 from 1 changes the groundwater route score (Sgw) from 56.41 to 45.13 and the composite score (Sm) for the site from 32.61 to 26.09.

Thus, based on the more accurate groundwater depths reported by Golder, the Site should not be placed on the NPL.

B. Net Precipitation

The reference material used by EPA to predict the amount of seasonal precipitation at the Tosco site was compiled from the Climatic Atlas of the United States using data prepared by the National Oceanic and Atmospheric Administration between 1931 and 1951. These values overestimate the mean total precipitation during the referenced season (November 1 through April 30) by approximately 3/4 of an inch.

Tosco and its technical consultant have reviewed Climate Normals for the United States compiled by the National Climatic Center between 1951 and 1980, and have re-evaluated the seasonal precipitation prediction for the Tosco Spokane Terminal based on this more recent data and more precise representation of the data base. Actual measured precipitation data (Attachment B) in the region in which the facility is located was used. EPA's HRS User's Manual prefers this method for calculating net precipitation.

During the evaluated seasonal period, the measured precipitation is 11.48 inches. The precipitation data were obtained from the Spokane Weather Service Office (N 4738, W 11732, Elevation 2348 feet). The Terminal (N 4743, W 11721, Elevation

2000 feet) is located ten miles northeast of the Weather Service Office, and is well represented by this station.

Tosco's re-evaluation of net precipitation based on more recent data and following EPA's HRS User's Manual Guidance Procedures is 11.48 inches precipitation, minus 6.83 inches evaporation, equaling 4.64 inches. The assigned HRS score should therefore have been 1 and not 2, resulting in a lower total HRS score. The effect of changing this factor lowers the groundwater route score (Sgw) to 50.77 and the composite score (Sm) to 29.35, assuming all other factors remain unchanged.

Comment III: Site Name and Description

EPA refers to the site as "Tosco Corp. (Spokane Terminal)." Such a designation is misleading and inaccurate. The site has long been referred to by area property owners, the public, and the Washington State Department of Ecology (Ecology) as the "North Market Street Site." The site has been called the North Market Street site throughout a lengthy and ongoing remedial investigation overseen by Ecology. Recently the site was referred to as the North Market Street Site in documents generated by Ecology pursuant to the Washington State Hazardous Waste Cleanup Act. Presumably, Ecology will continue to play an active, if not lead agency, role in addressing the site in the future. The public should have confidence that both EPA and Ecology are addressing the same site and that potential contamination is limited to one area. Changing the name of the site at this time will generate needless confusion.

More importantly, the reference "Tosco Corp. (Spokane Terminal)" does not accurately describe the physical boundaries of the site or the geographic location of contaminated areas. The old waste oil lagoon cited by EPA, and forming the primary basis for listing the site, is located only partially on Tosco property. Most of the oil lagoon and contaminated soils are located on property to the north, including the adjoining Draper Tractor property and up the Burlington Northern railroad tracks. Tosco estimates that only one-tenth of the oil lagoon is actually located on Tosco property. Other properties of concern in the area have also been identified by Ecology.

Defining the site as Tosco's property also ignores other parties in the area who may be potentially responsible for any perceived problems at the site. For instance, the Washington Chief Refinery operated for many years across the railroad tracks to the immediate west of the Tosco property. The Midget Oil facility reclaimed used oil in an area next to the Tosco property. Chevron and Yellowstone currently operate pipeline terminals adjacent to the oil lagoon. Burlington Northern had extensive operations in the immediate vicinity over the years. Other property owners maintain underground petroleum tanks in the area. Defining the site as the Tosco property may arbitrarily limit the scope of

investigation of the site and will not encourage other potentially responsible parties to take an active role in investigation of potential problems at the site.

Finally, placing the stigma of a Superfund designation on an innocent landowner such as Tosco is patently unfair. While the name of a Superfund site may have no formal, legal consequence, the designation cannot be expected to foster Tosco's business position or reputation in the community. Tosco never operated the refinery nor placed RCRA wastes in the oil lagoons. Furthermore, contrary to EPA's assertion on the cover sheet to the HRS package, the refinery was moved prior to Tosco's acquisition of the property. Tosco has conducted only terminalling operations at the facility in above ground petroleum storage tanks. Any spills or leaks from these tanks that might be attributable to Tosco would be of free petroleum products excluded from CERCLA coverage under the petroleum exclusion, 42 USC § 9601(14).

Tosco therefore respectfully requests that the site continue to be named the "North Market Street Site" and be defined as an area encompassing all areas of concern and potentially responsible property owners.

IV. Conclusion

In summary, Tosco's Spokane Terminal should not be placed on the National Priorities List. First, the site should be excluded entirely from NPL coverage because the only potential releases at the site are of petroleum products. Second, even if CERCLA covered hazardous substances were released on the site, the small waste quantity, great depth to the aquifer, and current precipitation data indicate that the site does not warrant inclusion on the NPL. Using the figures discussed in these comments, including the highly conservative figure of 3 for hazardous waste quantity, results in a total score for the facility (Sm) of 21.79, well below the NPL listing threshold.

Furthermore, Tosco plans to fully address contamination on its property regardless of whether the site is listed on the NPL. The Department of Ecology is also addressing the site under state law independent of any NPL listing. Currently, Tosco is continuing efforts begun prior to the NPL nomination to complete the remedial investigation of the North Market Street Site with the cooperation of Ecology and other potentially responsible parties. State law mandates a thorough remediation that will meet standards virtually identical to federal standards. State law covers a breadth of contaminants (including petroleum) not regulated by CERCLA. Thus, the North Market Street Site can and will be fully addressed without federal involvement through an NPL listing. Listing the site on the NPL will have little effect aside from placing a stigma on Tosco and doubling the bureaucratic burden on potentially responsible parties.

Stephen A. Lingle
August 22, 1988
Page 7

Please contact the undersigned if you have any questions or require additional information.

Very truly yours,

HELLER, EHRMAN, WHITE & MCAULIFFE

A handwritten signature in cursive script that reads "R. Paul Beveridge". The signature is written in dark ink and is positioned above the printed name and title.

Ralph H. Palumbo
R. Paul Beveridge
Of Counsel to Tosco Corporation

RPB/amp
3-193
Attachments

U.S. DEPARTMENT OF COMMERCE
National Technical Information Service

PB-259 097

ASSESSMENT OF HAZARDOUS WASTE PRACTICES IN THE
PETROLEUM REFINING INDUSTRY

JACOBS ENGINEERING Co.

PREPARED FOR
U.S. ENVIRONMENTAL PROTECTION AGENCY

JUNE 1976

TD
883
JL

Kerosene Filter Clays and Lube Oil Filter Clays - Treatment with fixed bed clay is used to remove color bodies, chemical treatment residues, and traces of moisture from product streams such as gasoline, kerosene, jet fuel, and light fuel oil. Clay is also used to treat lube oils, a process in which the clay is mixed with the oil and subsequently removed with a rotary vacuum filter. Since clay is used in treatment of highly refined products, the spent clay from either of the above processes is reasonably free of oil and can be disposed of in a landfill. Various clay treatment processes are discussed in Appendix H. Spent clay is produced in significantly greater quantities from the clay contacting process than from the fixed bed process.

Once-Through Cooling Water Sludge - Water pumped from a nearby source is passed through primary settling tanks prior to usage for once-through cooling. Sludge is periodically removed from these tanks.

Dissolved Air Flotation Float - In some refineries, following processing by separators, additional oil and solids are removed by the process of dissolved air flotation. The process takes place in a circular tank with or without chemicals, bringing the finely divided solids and oil particles to the surface, where they are skimmed off for disposal.

Slop Oil Emulsion Solids - Skimmed oil from the API separators is usually pumped into a slop-oil tank where the mixture is separated into three fractions - oil, water and emulsion. The oil is returned for reprocessing, and the water is recycled back to the API separator. The emulsion layer may be disposed of as a sludge, or it may be further treated, i.e., demulsified. Demulsification is carried out by chemical or by physical treatment. The former employs the use of special agents, heat and settling tanks. The latter involves removal of suspended solids by centrifugation or vacuum filtration, while water and oils are effectively resolved in settling tanks. In either process, the oil is reprocessed, the water is returned to the wastewater treatment system, and the solids are disposed of as a solid waste.

Spent Lime from Boiler Feedwater Treatment - Spent lime from cold or hot lime softening and from the clarification of boiler feed water is continuously discharged, de-watered in a settling basin, and disposed of to land. The quantities and composition of the spent lime sludges are dependent upon the characteristics of the raw makeup water.

TABLE 37 (continued)

FACTORS AFFECTING THE COMPOSITION
AND QUANTITY OF SPECIFIC SOLID WASTE STREAMS

Waste	Factors Affecting Composition and Quantity
Neutralized HF alkylation sludge	Composition of fresh HF acid Composition of lime Feedstock composition Process operating conditions HF alkylation process metallurgy Size of HF alkylation unit
Spent filter clays	Type and number of clay treating processes used Type and number of products treated Composition and quantity of products treated Type and amount of clay used Refinery size
One-through cooling water sludge	Composition and quantity of raw water Cooling system metallurgy Size and nature of process leaks Refinery size and complexity
DAF float	Same factors as API separator sludge, plus: Residence time Amount and time of flocculating chemical used Efficiency of API separator
Slop oil emulsion solids	Composition and quantity of individual oil spills and oil leakages Composition of wastewater emulsions Nature of emulsion breaking treatment and degree of success Refinery size and complexity Quantity of oil in wastewater and degree of removal

TABLE 41

TOTAL QUANTITIES OF EACH COMPONENT IN EACH WASTE STREAM
GENERATED IN THE UNITED STATES IN 1974
Metric Tons (dry weight)

Component	Neutralized HF Alkyla- tion Sludge	Coke Fines	FCC Catalyst Fines	Lube Oil Filter Clays	API Separator Sludge	Non-Leaded Tank Bottoms	Slop Oil Emulsion Solids	Once-through Cooling Water Sludge	Waste Bio Sludge	Storm Water Silt	Spent Lime from Boiler Feedwater Treatment
Phenol	0.2	0.007	0.07	0.3	1.1	0.2	0.5	0.08	0.4	0.3	1.62
Cyanide	0.4	*	0.005	0.012	*	0.6	*	0.004	*	0.02	0.0008
Selenium (Se)	0.92	*	0.0003	0.1	0.07	1.0	0.007	0.06	0.0008	0.05	0.008
Arsenic (As)	0.04	0.0005	0.06	0.07	0.4	0.0006	0.3	0.02	0.3	0.2	0.08
Mercury (Hg)	0.001	*	*	0.02	0.03	0.03	0.02	0.02	0.2	0.01	0.02
Beryllium (Be)	0.001	*	0.02	0.02	0.0002	0.02	*	0.01	*	0.00006	0.001
Vanadium (V)	0.04	1.6	7.4	3.0	0.7	1.8	0.8	1.5	0.004	2.1	0.04
Chromium (Cr)	0.006	*	2.6	2.1	17.6	1.1	17.7	2.4	22.0	10.2	1.71
Cobalt (Co)	0.006	0.01	0.2	0.3	0.4	0.6	0.3	0.2	0.02	0.3	0.004
Nickel (Ni)	0.9	2.0	7.4	1.0	1.3	2.2	1.7	1.3	0.002	2.4	1.9
Copper (Cu)	0.2	0.01	0.5	0.4	1.4	7.1	1.1	5.7	0.8	0.8	3.0
Zinc (Zn)	0.2	0.05	1.6	5.4	20.7	0.2	5.4	4.7	9.9	6.9	8.5
Silver (Ag)	0.005	*	0.06	0.05	0.04	0.05	0.01	0.02	0.02	0.01	0.2
Cadmium (Cd)	0.001	0.004	0.004	0.07	0.03	0.03	0.004	0.0001	0.02	0.007	0.002
Lead (Pb)	0.1	0.05	1.5	0.1	1.2	2.1	0.06	2.1	0.4	1.6	3.0
Molybdenum (Mo)	*	0.0003	0.2	0.004	0.3	0.8	0.02	0.1	0.2	0.2	0.02
Ammonium Salts (as NH ₄)	*	*	*	0.2	0.4	0.2	0.3	0.2	2.4	0.03	0.01
Fluoride	810.0	*	*	*	*	*	*	*	*	*	*
Benz-A-Pyrene	2x10 ⁻⁵	--	1.4x10 ⁻⁴	0.009	0.0003	0.05	9x10 ⁻⁵	0.0001	0.0002	0.04	0.002
Total Wgt. of Hazard- ous Components	812	3.7	21.6	13.1	45.7	18.1	31.2	18.4	36.7	25.2	20.1
Total Wgt. Hazardous Components PLUS Inert Solids	7,670	3,470	31,000	51,250	32,670	68,470	20,300	28,130	10,580	22,625	320,000
Total Weight Oil	1,200	0.04	64.9	3,627	24,900	53,200	12,180	161	228	1,145	2,500
Total Dry Weight	8,870	3,470	31,070	54,880	57,570	121,670	32,480	28,290	10,800	23,770	322,500
% Water	54	0	0	45	53	18	40	25	87	25	59

* Less than 1 lb/yr

ATTACHMENT B

Climate Normals for the U.S. (Base: 1951-80)

First Edition

Data Elements Compiled by
National Climatic Center
Environmental Data and Information Service
National Oceanic and Atmospheric Administration

JUL 11 1985

CONTRA COSTA COUNTY LIBRARY

Gale Research Company
Book Tower • Detroit, Michigan 48226

MG

Station Names

Figures and letters following the station name indicate a rural location, and refer to the distance and direction of the station from the nearest post office. WSO, WSMO, AND WSFO denote a Weather Service Office, a Meteorological Observatory, and a Forecast Office, respectively. Station elevations are in feet above mean sea level. "R" or "6" denotes a recording gage. "///" indicates a wind shield is affixed to the gage.

Pacific Stations

Stations located on islands other than Hawaii generally have short records (i.e., less than 30 years) and did not meet the criteria for computation of normals. Short-term or period averages are given for these stations.

Maps

Maps show the locations of stations for which 1951-80 normals have been prepared.

Degree Day Normals*

The usual arithmetical procedures were not applied to obtain the heating and cooling degree day data. The rational conversion formulae developed by Thom (1) and (2) allow the properly adjusted mean temperature normals to be converted to degree day values that are unexpected. In some cases this procedure will yield a small number of degree day values that are unexpected. These cases occur when the standard deviations are computed from a mixed distribution as frequently occurs during the transition months. The unexpected values are low and unimportant for most applications of degree day data.

* The general concept of heating and cooling degree days is discussed on pages 711-12.

45 - WASHINGTON

LEGEND
11 = TEMPERATURE ONLY
12 = PRECIPITATION ONLY
13 = TEMP. & PRECIP.

STATE-STATION NUMBER	STN TYP	NAME	LATITUDE DEG-MIN	LONGITUDE DEG-MIN	ELEVATION (FT)
45-0008	13	ABERDEEN	//	N 4658 W 12349	10
45-0013	12	ABERDEEN 20 NNE		N 4716 W 12342	435
45-0176	13	ANACORTES		N 4831 W 12237	30
45-0184	12	ANATONE		N 4608 W 11708	3570
45-0257	12	ARLINGTON		N 4812 W 12208	100
45-0482	13	BATTLE GROUND	N 4547	W 12232	295
45-0564	13	BELLINGHAM 2 N		W 12229	140
45-0574	13	BELLINGHAM FAA AIRPORT		W 12232	150
45-0668	13	BICKLETON		W 12018	3000
45-0729	13	BLAINE 1 ENE		W 12244	80
45-0872	13	BREMERTON	N 4734	W 12240	162
45-0945	13	BUCKLEY 1 NE	N 4710	W 12200	685
45-1233	13	CEDAR LAKE	N 4725	W 12144	1560
45-1276	13	CENTRALIA	N 4643	W 12257	185
45-1350	13	CHELAN	N 4750	W 12002	1120
45-1395	13	CHEWELAH 4 SSW	N 4813	W 11745	1675
45-1400	13	CHIEF JOSEPH DAM	N 4800	W 11939	810
45-1414	12	CHIMACUM 4 S	N 4757	W 12246	250
45-1484	13	CLEARBROOK	N 4858	W 12220	64
45-1496	13	CLEARWATER	N 4735	W 12418	75
45-1504	13	CLE ELUM	N 4711	W 12057	1930
45-1586	13	COLFAX 1 NW		W 11723	1955
45-1650	13	COLVILLE AP		W 11753	1885
45-1666	12	CONCONULLY		W 11945	2275
45-1679	13	CONCRETE		W 12146	195
45-1691	12	CONNELL 12 SE	N 4630	W 11846	1078
45-1767	13	COULEE DAM 1 SW	N 4757	W 11900	1630
45-1783	13	COUPEVILLE 1 S	N 4812	W 12242	50
45-1968	13	DALLESPORT FAA AIRPORT	N 4537	W 12109	222
45-1972	12	DALLESPORT 9 N	N 4545	W 12109	1919
45-1992	12	DARRINGTON RANGER STA	N 4815	W 12136	550
45-2007	13	DAVENPORT	N 4739	W 11809	2460
45-2030	13	DAYTON 1 WSW	N 4619	W 11800	1557
45-2157	13	DIABLO DAM	N 4843	W 12109	891
45-2220	12	DOTY 3 E	N 4638	W 12312	260
45-2493	13	ELECTRON HEADWORKS	N 4654	W 12202	1730
45-2531	13	ELMA		W 12324	68
45-2548	13	ELWA RANGER STATION		W 12335	360
45-2614	13	EPHRATA FAA AIRPORT		W 11932	1259
45-2675	13	EVERETT		W 12211	60
45-2914	13	FORKS 1 E	N 4757	W 12422	350
45-3160	12	GLACIER RANGER STATION	N 4853	W 12157	935
45-3177	13	GLENOMA 1 W	N 4631	W 12210	870
45-3284	13	GRAPEVIEW 3 SW	N 4718	W 12252	30
45-3357	12	GREENWATER	N 4708	W 12138	1730
45-3502	12	HARRINGTON 5 S	N 4725	W 11815	2167
45-3529	12	HARTLINE	N 4741	W 11906	1910
45-3546	13	HATTON 9 ESE	N 4645	W 11839	1430
45-3807	13	HOQUIAM FAA AIRPORT	N 4658	W 12356	14
45-3975	12	IRENE MT WAUCONDA	N 4849	W 11854	2700

45 — WASHINGTON

LEGEND

11 = TEMPERATURE ONLY
 12 = PRECIPITATION ONLY
 13 = TEMP. & PRECIP.

STATE-STATION NUMBER	STN TYP	NAME	LATITUDE DEC-MIN	LONGITUDE DEC-MIN	ELEVATION (FT)
45-4077	12	KAHLOTUS 4 SW	N 4636	W 11836	1340
45-4154	13	KENNEWICK	N 4613	W 11908	392
45-4169	13	KENT	N 4723	W 12216	32
45-4201	13	KID VALLEY	N 4622	W 12237	690
45-4338	13	LACROSSE 3 ESE	N 4648	W 11749	1546
45-4446	12	LAKE WENATCHEE	N 4750	W 12048	2005
45-4486	13	LANDSBURG	N 4723	W 12158	535
45-4549	13	LAURIER	N 4900	W 11814	1644
45-4572	12	LEAVENWORTH 3 S	N 4734	W 12040	1128
45-4679	13	LIND 3 NE	N 4700	W 11835	1630
45-4769	13	LONGVIEW	N 4610	W 12255	12
45-5224	13	MC MILLIN RESERVOIR	N 4708	W 12216	579
45-5387	12	MILL CREEK DAM	N 4605	W 11816	1175
45-5425	12	MINERAL	N 4643	W 12211	1480
45-5525	13	MONROE	N 4751	W 12159	120
45-5613	13	MOSES LAKE 3 E	N 4707	W 11912	1208
45-5659	13	MOUNT ADAMS RANGER STA	N 4600	W 12132	1960
45-5688	13	MOXEE CITY 10 E	N 4631	W 12010	1550
45-5704	13	MUD MOUNTAIN DAM	N 4709	W 12156	1308
45-5774	12	NASELLE 1 ENE	N 4622	W 12347	35
45-5801	12	NEAH BAY 1 E	N 4822	W 12437	15
45-5832	12	NESPELEM 2 S	N 4808	W 11859	1890
45-5840	13	NEWHALEM	N 4841	W 12115	525
45-5844	13	NEWPORT	N 4811	W 11703	2135
45-5946	13	NORTHPORT	N 4855	W 11747	1350
45-6011	13	OAKVILLE	N 4650	W 12313	85
45-6039	13	ODESSA	N 4720	W 11840	1540
45-6096	13	OLGA 2 SE	N 4837	W 12248	80
45-6114	13	OLYMPIA WSO	N 4658	W 12254	195
45-6123	13	OMAK 2 NW	N 4826	W 11932	1228
45-6215	13	OTHELLO 6 ESE	N 4648	W 11903	1190
45-6295	13	PALMER 3 ESE	N 4718	W 12151	920
45-6534	12	PLAIN	N 4747	W 12039	1940
45-6553	12	PLEASANT VIEW	N 4631	W 11820	1665
45-6584	12	POINT GRENVILLE	N 4718	W 12417	100
45-6610	13	POMEROY	N 4628	W 11737	1810
45-6624	13	PORT ANGELES	N 4807	W 12326	99
45-6678	12	PORT TOWNSEND	N 4807	W 12245	100
45-6768	13	PROSSER 4 NE	N 4615	W 11945	903
45-6789	13	PULLMAN 2 NW	N 4646	W 11712	2545
45-6803	13	PUYALLUP 2 W EXP STA	N 4712	W 12220	50
45-6846	13	QUILCENE 2 SW	N 4749	W 12255	123
45-6858	13	QUILLAYUTE WSO	N 4757	W 12433	179
45-6880	13	QUINCY 1 S	N 4713	W 11951	1274
45-6896	12	RAINIER OHANAPECOSH	N 4644	W 12134	1950
45-6898	13	RAINIER PARADISE RS //	N 4647	W 12144	5427
45-6909	12	RANDLE 1 E	N 4632	W 12156	900
45-6974	13	REPUBLIC	N 4839	W 11844	2610
45-7015	13	RICHLAND	N 4617	W 11917	357
45-7059	13	RITZVILLE 1 SSE	N 4707	W 11822	1830

45 - WASHINGTON

LEGEND

11 = TEMPERATURE ONLY
12 = PRECIPITATION ONLY
13 = TEMP. & PRECIP.

STATE-STATION NUMBER	STN TYP	NAME	LATITUDE DEG-MIN	LONGITUDE DEG-MIN	ELEVATION (FT)
45-7180	13	ROSALIA	N 4714	W 11722	2400
45-7319	12	SAPPHO 8 E	N 4804	W 12407	760
45-7458	13	SEATTLE EMSU WSO	N 4739	W 12218	20
45-7473	13	SEATTLE-TACOMA WSO	R N 4727	W 12218	400
45-7478	13	SEATTLE U OF W	N 4739	W 12217	96
45-7507	13	SEDRO WOOLLEY	N 4830	W 12214	50
45-7538	13	SEQUIM	N 4805	W 12306	180
45-7584	13	SHELTON	N 4712	W 12306	22
45-7773	13	SNOQUALMIE FALLS	N 4733	W 12151	440
→ 45-7938	13	SPOKANE WSO	//R N 4738	W 11732	2349
45-7956	13	SPRAGUE	N 4718	W 11759	1930
45-7987	12	SPRUCE	N 4748	W 12404	365
45-8009	13	STAMPEDE PASS WSO	//R N 4717	W 12120	3958
45-8034	13	STARTUP 1 E	N 4752	W 12143	170
45-8059	13	STEHEKIN 3 NW	N 4820	W 12042	1150
45-8089	12	STEVENS PASS	N 4744	W 12105	4070
45-8207	13	SUNNYSIDE	N 4619	W 12000	747
45-8286	13	TACOMA CITY HALL	N 4715	W 12226	267
45-8348	12	TEKOA	N 4713	W 11705	2610
45-8773	13	VANCOUVER 4 NNE	N 4541	W 12239	210
45-8928	13	WALLA-WALLA FAA AP	R N 4606	W 11817	1170
45-8931	13	WALLA WALLA WSO	N 4602	W 11820	949
45-8959	13	WAPATO	N 4626	W 12025	850
45-9012	13	WATERVILLE	N 4739	W 12004	2620
45-9021	12	WAUNA 3 W	N 4722	W 12242	17
45-9058	12	WELLPINIT	N 4753	W 11759	2450
45-9074	13	WENATCHEE	N 4725	W 12019	634
45-9191	12	WHITE SWAN R. S.	N 4623	W 12043	970
45-9238	13	WILBUR	N 4745	W 11842	2160
45-9291	13	WILLAPA HARBOR	N 4641	W 12345	10
45-9327	13	WILSON CREEK	N 4725	W 11907	1276
45-9376	13	WINTHROP 1 WSW	N 4828	W 12011	1755
45-9465	13	YAKIMA WSO	//R N 4634	W 12032	1064

WASHINGTON

PRECIPITATION NORMALS (INCHES)

STATION	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AN
LAKE WENATCHEE	8.30	4.60	3.09	1.63	1.10	.93	.43	.77	.28	3.34	5.94	8.27	39
LANDSBURG	7.93	5.93	5.30	4.30	3.20	2.99	1.49	2.06	3.30	4.67	7.48	8.71	57
LAURIER	2.20	1.46	1.35	1.38	1.89	1.86	1.15	1.48	.95	1.33	1.84	2.38	19
LEAVENWORTH 3 S	5.15	2.95	2.15	1.14	.73	.65	.31	.69	.77	1.80	4.08	5.24	25
LIND 3 NE	1.11	.83	.71	.68	.81	.65	.27	.42	.49	.75	1.18	1.31	9
LONGVIEW	6.96	4.41	4.48	3.30	2.36	1.99	.85	1.58	2.21	4.07	6.28	7.65	46
MC MILLIN RESERVOIR	6.00	4.28	3.76	3.04	2.18	1.98	.89	1.64	2.21	3.56	5.66	6.20	41
MILL CREEK DAM	2.22	1.45	1.66	1.59	1.53	1.08	.44	.79	.98	1.50	2.17	2.32	17
MINERAL	13.73	9.31	8.64	5.49	3.51	2.82	1.29	1.95	3.16	6.58	10.97	13.21	80
MONROE	6.66	4.89	4.70	3.57	2.82	2.46	1.28	2.00	2.83	4.28	6.14	6.87	48
MOSES LAKE 3 E	.95	.69	.59	.53	.72	.57	.26	.35	.37	.55	.99	1.17	7
MOUNT ADAMS RANGER STA	9.14	5.24	4.74	2.25	1.29	.92	.30	.86	1.40	3.62	7.11	8.54	45
MOXEE CITY 10 E	1.00	.65	.61	.66	.61	.65	.26	.49	1.43	.58	.96	.99	7
MUD MOUNTAIN DAM	7.08	4.89	4.66	4.58	3.96	3.75	1.58	2.54	3.46	4.73	6.64	7.45	55
NASALLE 1 ENE	18.52	13.77	13.20	7.26	4.56	3.31	1.71	2.68	4.74	9.92	15.96	19.49	115
NEAH BAY 1 E	15.57	12.23	10.27	6.91	3.73	2.80	2.35	2.65	4.80	10.22	14.33	17.50	103
NESPELEM 2 S	1.48	1.06	.89	.96	1.27	.94	.53	.65	.68	.94	1.54	1.94	12
NEWAHEM	12.51	9.42	7.17	4.79	3.05	2.59	1.67	2.24	4.30	8.02	11.45	14.37	81
NEWPORT	3.97	2.65	2.17	1.87	2.16	1.76	.93	1.29	1.32	2.07	3.55	4.20	27
NORTHPORT	2.33	1.64	1.35	1.28	1.87	1.92	.98	1.36	1.16	1.41	2.11	2.65	20
OAKVILLE	9.82	6.22	6.04	3.68	2.34	1.94	.77	1.61	2.73	5.21	8.02	9.89	58
ODESSA	1.29	.90	.83	.65	.90	.57	.31	.38	.51	.66	1.31	1.49	9
OLGA 2 SE	4.23	2.93	2.38	1.91	1.45	1.34	.96	1.20	1.75	2.91	3.85	4.53	29
OLYMPIA WSO	8.50	5.77	4.85	3.13	1.85	1.44	.76	1.34	2.36	4.68	7.58	8.70	50
OMAK 2 NW	1.39	1.14	.89	.92	1.03	.90	.52	.68	.59	.82	1.38	1.77	12
OTHELLO 6 ESE	1.12	.79	.60	.51	.65	.57	.22	.33	.34	.54	.98	1.15	7
PAKMER 3 ESE	12.24	9.41	9.01	7.71	5.57	5.24	2.38	3.38	5.30	7.59	11.00	13.47	92
PLAIN	5.45	3.29	2.27	1.14	.84	.72	.34	.68	.80	1.96	4.28	5.67	27
PLEASANT VIEW	1.75	1.18	1.16	.91	.96	.86	.28	.53	.62	.99	1.61	1.89	12
POINT GRENVILLE	12.82	10.02	9.67	6.00	3.89	2.86	1.98	2.54	4.21	8.75	12.60	13.80	89
POMEROY	2.14	1.36	1.45	1.18	1.27	1.07	.42	.76	.73	1.18	1.71	2.23	15
PORT ANGELES	4.39	2.74	2.12	1.32	.89	.86	.49	.85	1.26	2.44	3.77	4.25	25
PORT TOWNSEND	2.39	1.67	1.96	1.51	1.44	1.29	.82	.98	1.12	1.40	2.35	2.82	19
PROSSER 4 NE	1.05	.63	.50	.60	.68	.54	.24	.33	.36	.64	.98	1.15	7
PULLMAN 2 NW	2.89	2.09	1.96	1.58	1.52	1.49	.53	.95	.99	1.61	2.64	3.07	21
PUYALLUP 2 W EXP STA	6.23	4.51	3.81	2.82	1.82	1.63	.81	1.43	2.06	3.44	5.66	6.54	40
QUILCENE 2 SW	8.37	6.64	6.21	3.38	2.83	2.28	1.15	1.36	1.65	4.34	7.67	9.75	55
QUILLAYUTE WSO	15.07	12.10	11.27	7.10	4.70	3.06	2.32	2.85	5.27	10.51	13.94	16.31	104
QUINCY 1 S	.99	.75	.66	.62	.58	.51	.26	.36	.37	.52	1.04	1.19	7
RAINIER OHANAPECOSH	14.29	8.77	7.19	4.56	2.88	2.32	.87	1.89	3.30	6.62	11.27	14.15	78
RAINIER PARADISE RS	18.44	13.16	11.46	7.55	4.62	3.87	1.71	3.22	5.50	9.70	15.43	19.31	113
RANDLE 1 E	9.44	5.94	5.58	4.12	2.91	2.55	.81	1.84	2.90	5.08	8.05	10.47	59
REPUBLIC	1.90	1.30	1.19	1.09	1.60	1.49	.84	1.31	.82	.96	1.52	2.11	16
RICHLAND	1.03	.69	.50	.42	.53	.44	.14	.32	.28	.46	.91	1.06	6
RITZVILLE 1 SSE	1.42	1.07	.91	.82	.88	.76	.34	.46	.58	.89	1.47	1.73	11
ROSALIA	2.35	1.56	1.43	1.30	1.48	1.32	.51	.85	.80	1.34	2.01	2.42	17
SAPPHO 8 E	14.97	11.66	10.05	6.50	3.89	2.67	1.86	2.47	4.62	9.29	13.80	15.86	97
SEATTLE EMSO WSO	5.94	4.20	3.70	2.46	1.66	1.53	.89	1.38	2.03	3.40	5.36	6.29	38
SEATTLE-TACOMA WSO	6.04	4.22	3.59	2.40	1.58	1.38	.74	1.27	2.02	3.43	5.60	6.33	38
SEATTLE U OF W	5.24	3.79	3.46	2.39	1.52	1.59	.91	1.05	1.90	3.03	4.92	5.70	35
SEDRO WOOLLEY	6.03	4.64	3.99	3.56	2.63	2.29	1.52	1.98	3.09	4.35	5.77	6.59	46
SEQUIM	2.37	1.37	1.31	1.06	.94	1.03	.49	.78	.97	1.37	2.20	2.50	16
SHELTON	11.40	7.78	6.80	4.12	2.03	1.61	.92	1.38	2.61	5.78	9.72	11.45	65
SNOQUALMIE FALLS	9.07	6.49	5.97	4.50	3.21	2.81	1.43	1.86	3.17	5.19	8.13	9.54	61
SPOKANE WSO	2.47	1.61	1.36	1.08	1.38	1.23	.50	.74	.71	1.08	2.06	2.49	16

WASHINGTON

PRECIPITATION NORMALS (INCHES)

STATION	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANN
FRAGUE	2.07	1.39	1.19	1.04	1.14	.87	.48	.69	.66	1.06	1.93	2.24	14.76
RUCE	19.71	15.62	13.91	8.76	5.38	3.71	2.38	3.32	6.00	12.92	17.94	22.12	131.77
STAMPEDE PASS WSO	14.59	10.19	8.88	6.28	3.97	3.84	1.56	2.85	4.65	7.74	12.14	15.88	92.57
STARTUP 1 E	8.68	6.20	5.93	5.31	4.31	3.64	1.99	2.49	3.84	5.86	8.02	9.18	65.45
STEHEKIN 3 NW	5.99	3.76	2.89	1.25	.87	.79	.47	.92	1.33	2.79	5.47	6.92	33.45
TEVENS PASS	14.18	9.66	7.89	4.70	3.29	2.68	1.25	2.10	3.64	6.63	11.16	14.57	81.75
SUNNYSIDE	1.03	.56	.42	.51	.53	.45	.20	.30	.37	.49	.83	.99	6.70
TACOMA CITY HALL	5.74	4.06	3.38	2.49	1.48	1.31	.75	1.25	1.95	3.27	5.47	6.02	37.17
TEKOA	2.70	1.67	1.66	1.44	1.75	1.62	.67	.89	.98	1.51	2.28	2.87	20.04
INCOVER 4 NNE	6.71	4.34	3.81	2.61	2.24	1.62	.57	1.22	1.88	3.46	5.61	7.00	41.07
WALLA-WALLA FAA AP	2.42	1.59	1.66	1.59	1.56	1.04	.42	.82	.95	1.54	2.29	2.48	18.36
WALLA WALLA WSO	2.12	1.40	1.41	1.35	1.40	.93	.35	.71	.83	1.40	1.87	2.19	15.96
WAPATO	1.20	.64	.56	.51	.45	.53	.19	.36	.34	.43	.93	1.10	7.24
WATERVILLE	1.50	.91	.73	.76	.82	.77	.30	.76	.51	.72	1.39	1.70	10.87
WANA 3 W	8.65	6.24	5.37	3.25	1.87	1.43	.92	1.31	2.21	4.50	7.47	8.82	52.04
WELLPINIT	2.50	1.75	1.52	1.48	1.74	1.09	.73	1.04	.89	1.23	2.47	2.98	19.42
WENATCHEE	1.37	.85	.60	.62	.55	.53	.15	.66	.35	.57	1.15	1.45	8.85
WHITE SWAN R. S.	1.74	.92	.68	.50	.36	.37	.24	.28	.28	.48	1.18	1.68	8.71
WILBUR	1.44	1.02	.94	.87	1.18	.88	.45	.70	.70	.87	1.58	1.68	12.31
WILLAPA HARBOR	13.71	10.03	9.38	5.96	3.53	2.86	1.36	2.17	3.76	7.54	11.20	13.83	85.33
WILSON CREEK	1.11	.78	.70	.60	.78	.59	.27	.38	.43	.61	1.15	1.36	8.76
WINTHROP 1 WSW	2.35	1.40	.89	.76	.83	.83	.58	.83	.64	.82	1.78	2.90	14.61
YAKIMA WSO	1.44	.74	.65	.50	.48	.60	.14	.36	.33	.47	.97	1.30	7.98

ASHINGTON

PRECIPITATION NORMALS (INCHES)

STATION	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANN
BERDEEN	12.10	9.75	9.06	5.51	3.35	2.50	1.27	2.12	3.66	7.29	10.96	13.77	82.34
BERDEEN 20 NNE //	21.12	16.34	14.44	8.84	4.95	3.41	2.33	3.18	6.37	11.97	17.86	22.81	133.62
BACORTES	3.67	2.48	2.11	1.70	1.32	1.25	.96	1.00	1.44	2.44	3.22	4.04	25.63
ANATONE	2.43	1.58	1.82	1.72	2.08	1.98	.77	1.14	1.11	1.48	2.13	2.25	20.49
ARLINGTON	5.89	4.38	4.23	3.58	3.07	2.44	1.48	1.98	2.78	4.12	5.50	6.47	45.92
ATTLE GROUND	7.68	5.17	5.10	3.63	2.93	2.34	.72	1.62	2.34	4.56	7.10	8.52	51.71
BELLINGHAM 2 N	4.69	3.49	2.97	2.58	2.08	1.74	1.15	1.45	2.18	3.47	4.63	5.05	35.46
BELLINGHAM FAA AIRPORT	4.79	3.51	2.97	2.43	2.01	1.71	1.11	1.41	2.05	3.49	4.64	5.14	35.26
BICKLETON	2.60	1.56	1.15	.80	.80	.67	.32	.36	.45	.82	2.11	2.54	14.18
BAINE 1 ENE	5.54	4.20	3.39	2.51	1.98	1.81	1.16	1.55	2.34	3.97	5.57	6.32	40.34
BERMERTON	8.25	5.94	5.34	2.91	1.78	1.50	.80	1.17	2.10	4.18	7.51	8.93	50.41
BUCKLEY 1 NE	6.52	4.79	4.33	3.91	3.13	2.92	1.20	2.03	2.94	4.20	6.15	6.85	48.97
CEDAR LAKE	14.47	10.73	10.24	8.16	5.69	5.15	2.35	3.17	5.53	8.77	12.92	15.23	102.41
CENTRALIA	7.38	4.98	4.73	3.01	2.03	1.78	.84	1.46	2.22	4.13	6.44	7.71	46.71
CLAN	1.39	1.03	.85	.84	.62	.60	.30	.55	.52	.73	1.43	1.71	10.57
CHEWELAH 4 SSW	2.56	1.76	1.64	1.45	1.97	1.36	.80	1.12	1.04	1.41	2.46	3.12	20.69
CHIEF JOSEPH DAM	1.19	1.04	.75	.66	.68	.86	.21	.57	.40	.59	1.23	1.57	9.75
CHIMACUM 4 S	4.04	2.88	3.26	2.23	1.92	1.72	.89	1.24	1.27	2.28	3.38	4.76	29.87
CLARIBROOK	5.57	4.65	3.96	3.39	2.85	2.32	1.50	2.07	3.23	4.68	5.83	6.47	46.52
CLARIBROOK	17.33	14.08	12.94	8.30	5.36	3.36	2.64	3.39	6.35	11.81	16.14	19.54	121.24
CLE ELUM	4.14	2.46	1.91	1.27	.77	.70	.27	.59	.81	1.63	3.51	4.59	22.65
COLFAX 1 NW	2.74	1.85	1.81	1.58	1.46	1.35	.50	.83	.94	1.45	2.25	3.04	19.80
COVILLE AP	2.22	1.45	1.21	1.05	1.62	1.48	.77	1.16	.89	1.17	2.05	2.49	17.56
CONCULLY	1.71	1.39	1.19	1.06	1.45	1.21	.60	1.20	.77	.93	1.38	1.89	14.78
CONCRETE	10.34	7.55	6.92	4.47	3.02	2.49	1.42	1.99	3.73	6.70	9.44	11.36	69.43
CONNELL 12 SE	1.22	.83	.79	.63	.79	.66	.24	.48	.41	.76	1.22	1.43	9.46
CULLEE DAM 1 SW	1.17	.87	.71	.76	1.09	.72	.38	.58	.53	.65	1.26	1.51	10.23
CULPEVILLE 1 S	2.55	1.71	1.79	1.62	1.47	1.23	.76	1.00	1.30	1.66	2.35	3.00	20.44
DALLESPORT FAA AIRPORT	2.88	1.48	1.10	.50	.45	.31	.08	.32	.38	.93	2.03	2.71	13.17
DALLESPORT 9 N	4.31	2.64	2.03	1.11	.82	.58	.21	.57	.76	1.78	3.45	4.14	22.40
DARRINGTON RANGER STA	13.08	9.68	8.55	5.34	3.41	2.63	1.51	2.10	4.28	7.51	11.14	13.50	82.73
DENPORT	7.99	1.38	1.33	1.10	1.33	.97	.59	.77	.82	1.03	1.95	2.21	15.47
DUTTON 1 WSW	2.60	1.60	1.83	1.47	1.33	1.19	.45	.76	.89	1.50	2.22	2.79	18.63
DIABLO DAM	11.88	8.69	6.76	4.55	2.79	2.05	1.41	1.83	4.14	7.74	11.49	13.74	77.07
DOTY 3 E	9.13	6.35	6.29	3.57	2.21	1.80	.66	1.45	2.55	4.70	7.78	9.18	55.67
ELECTRON HEADWORKS	10.06	6.72	6.07	5.09	3.95	3.37	1.24	2.21	3.37	6.12	8.69	10.11	67.00
ELIA	11.05	7.79	7.30	4.47	2.52	2.00	1.02	1.66	2.91	6.31	9.43	11.14	67.60
ELWHA RANGER STATION	9.27	7.00	5.96	3.08	1.60	1.11	.71	1.21	2.05	5.10	8.39	10.35	55.83
EPHRATA FAA AIRPORT	.99	.67	.62	.53	.54	.53	.25	.28	.32	.49	.92	1.14	7.28
EVERETT	4.77	3.48	3.52	2.58	2.24	2.06	1.08	1.55	2.06	3.19	4.48	5.22	36.23
FORKS 1 E	17.99	14.42	12.85	7.95	4.84	3.05	2.29	2.78	5.46	11.47	15.92	20.04	119.06
GLACIER RANGER STATION	9.25	6.86	5.82	4.23	2.89	2.62	1.51	2.38	3.71	6.48	8.47	9.90	64.12
GLENOMA 1 W	9.82	6.57	6.04	4.80	3.37	2.78	.95	1.94	3.13	5.57	8.49	10.66	64.12
GRAPEVIEW 3 SW	8.63	6.30	5.20	3.26	1.88	1.43	.92	1.31	2.36	4.74	7.50	8.74	52.27
GREENWATER	8.79	5.62	4.91	4.07	2.88	2.55	1.07	1.89	2.99	5.05	7.45	8.96	56.23
HARRINGTON 5 S	1.53	1.14	.98	.91	1.08	.79	.43	.52	.61	.96	1.64	1.72	12.31
HARTLINE	1.24	.91	.82	.75	.93	.79	.41	.50	.57	.69	1.39	1.54	10.54
HATTON 9 ESE	1.27	.90	.81	.71	.84	.59	.26	.47	.43	.82	1.27	1.48	9.85
QUIAM FAA AIRPORT	10.95	8.22	7.71	4.53	2.96	2.09	1.22	1.78	3.57	6.66	9.93	11.60	71.22
LINE MT WAUCONDA	1.19	.86	.81	1.08	1.81	1.91	1.01	1.38	.83	.94	1.09	1.39	14.30
KAHLOTUS 4 SW	1.35	.90	.86	.74	.86	.75	.27	.43	.47	.81	1.32	1.55	10.31
KENNEWICK	1.17	.66	.54	.46	.59	.44	.19	.40	.37	.56	.99	1.18	7.55
KIT	6.18	4.23	3.77	2.64	1.75	1.52	.81	1.34	2.05	3.47	5.68	6.48	39.92
KH VALLEY	8.81	6.03	6.47	4.98	3.54	2.84	1.09	2.11	2.75	5.20	7.29	9.07	60.18
LACROSSE 3 ESE	1.92	1.26	1.12	.90	.97	.90	.39	.60	.60	1.02	1.64	2.17	13.49

